

## (Abstract)

An aluminum nitride joined body comprising two pieces of aluminum nitride sintered body plates joined together without using adhesive, and a metal layer formed on a portion of the junction interface thereof, wherein, as viewed on a side section passing through the center of the joined body, a plurality of voids are existing in the directly joined region where the sintered body plates are directly facing each other on the junction interface, the voids having an average length  $L$  of 0.5 to 4  $\mu\text{m}$  along the junction interface, thereby forming non-joined portions due to the voids, and a non-joined ratio  $Q$  on the side section as calculated by the following formula (1),

$$\text{Non-joined ratio } Q = (X/Y) \times 100 \quad \text{--- (1)}$$

where  $X$  is a length of the non-joined portion in the direction of junction interface expressed by the sum of lengths  $L$  of the voids existing in the directly joined region, and  $Y$  is a length of the directly joined region where the voids are existing,

is in a range of from 0.1 to 0.5% on average. The AlN plate-like joined body has the metal layer contained therein that is effectively suppressed from warping, exhibits a large junction strength, excellent durability, and is useful as a plate heater or an electrostatic chuck for treating a semiconductor wafer that is placed thereon in an apparatus for producing a semiconductor.